

## ABSTRACT OF THE DISCLOSURE:

A direct conversion receiver includes a receiver for receiving a signal including multiple components at different receiving frequencies belonging to a frequency band. A mixer mixes the signal components into a base band signal comprising I- and Q branches. A converter converts the analog base band signal into a digital signal. The receiver includes a measuring unit for measuring power levels of the signal components in pairs, where one component in the pair belongs to an upper sideband of the frequency band and one component in the pair belongs to a lower sideband of the frequency band. An estimator estimates, when either the upper sideband component or the lower sideband component dominates in power over the component in the pair, a frequency-independent phase imbalance, a frequency-dependent phase imbalance and a gain imbalance, and a compensator compensates the estimated imbalances to at least one of the I- and Q-branch signals.